REMARKS

Claim 1 has been amended herein. Claim 7 has been canceled herein. Claim 15 has been added herein. Claims 8-14 were previously withdrawn in response to a Restriction Requirement. Claims 1-6 and 15 will remain pending following entry of this amendment. Claim 1 is independent.

Summary of Claim Rejections

In the Office Action, claims 1-3 and 6 are rejected under 35 U.S.C. § 102(b) as being anticipated by Buchkremer et al ("Advances in the Anode Supported Planar SOFC technology, Electrochemical Proceedings, volume 97-18, 1997, hereafter "Buchkremer"). Claims 1- 6 are also rejected under 35 U.S.C. § 102(b) as being anticipated by Stover et al ("Recent Developments in Anode Supported Thin Film SOFC at Research Centre Julich", Electrochemical Proceedings, volume 99-19, 1999, hereafter "Stover"). Additionally, claims 1-7 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's admitted prior art in view of U.S. Patent Publication No. US 2004/0072060 to Ukai et al. (hereafter "Ukai").

Applicant respectfully traverses all of the rejections for at least the reasons set forth below.

Claim Rejections

Claim 1 as amended recites:

> An electrolyte electrode assembly sandwiched between a pair of separators, said electrolyte electrode assembly comprising an anode, a cathode, and an electrolyte interposed between said anode and said cathode, and bosses being formed on said pair of separators, wherein
>
> a layer is provided between said cathode and said bosses on said one of said separators, said layer comprising material which has electron conductivity higher than that of said cathode, and which is capable of inducing oxygen reduction, **the layer having a thickness of less than 10 μm**.

Buchkremer, Stover and Ukai fail to disclose or suggest an assembly with the claimed layer that has a thickness of less than 10 μm.

The Buchkremer reference discusses Solid Oxide Fuel Cells (SOFC). More specifically, the reference discusses an anode planar SOFC concept with a 15 μm thin YSZ electrolyte layer designed to operate on hydrogen and air at 800° C without any noticeable degradation in the first 500 h (Abstract). The discussed SOFC concept includes the use of a cathode contact layer ($LaCoCO_3$).

The Stover reference discusses materials used to lower the operating temperatures of Solid Oxide Fuel Cells (SOFC). More specifically, the reference discusses varying the oxide component of an anode substrate. New interconnect materials based on ferritic steel for low-temperature operating conditions and a new casing design for stack testing are utilized (Abstract).

The Ukai reference discusses a solid oxide fuel cell. More specifically, the Ukai reference discusses a fuel cell used for a distributed power source or cogeneration system (see Field of Invention). The described fuel cell includes a first solid electrolyte showing oxide ion conductivity, a fuel electrode comprised of a cermet of a catalyst and a second solid electrolyte and being bonded to one side of the first solid electrolyte, and an air electrode comprised of a compound of perovskite type transition metal oxide and a third solid electrolyte and being bonded to the other side of the first solid electrolyte. The first solid electrolyte shows predetermined oxide ion conductivity and has mechanical characteristics, and the second solid electrolyte shows high oxide ion conductivity. The surface of the fuel electrode is coated with a fuel electrode contact layer and the surface of the air electrode is coated with an air contact layer. An aqueous solution where a water-soluble noble metal compound is dissolved in water is impregnated into the air electrode is also discussed(para [0001, 0033]). Of note, Ukai indicates that "**the thickness of the air electrode contact layer is** preferably within 10 to 50 μm and **more preferably 20 to 30 μm"** (para. [0101]).

Buchkremer and Stover do not disclose or suggest the thickness of the claimed layer between the cathode and a boss on one of the separators now recited in claim 1 (less than 10 μm), a fact the Examiner appears to implicitly acknowledge as neither reference was cited as a basis for rejecting the now canceled claim 7 which recited a thickness of 10 μm or less.

With regard to the Ukai reference, the Examiner appears to consider that the air electrode contact layer of the Ukai reference corresponds to the electron diffusion layer of the present invention. In the Ukai reference, both sides of a single cell, i.e., the air electrode contact layer side and the fuel electrode contact layer side are sandwiched between Pt meshes, as described at paragraph [0128] and shown in FIG. 2 of the Ukai reference. To increase electrical conductivity, because the Pt meshes need to partially bury in each of the contact layers so as to tightly contact with the contact layers, the contact layers preferably have the thickness of 20 to 30 μm. Further, the air electrode contact layer functions to bridge the gap generated between the air electrode and the separator, as described at paragraph [0086] of the Ukai reference. Thus, a favorable adhesion condition is maintained and microscopic asperities on the separator are absorbed. Please see paragraph [0087] of the Ukai reference. For this purpose, the air electrode contact layer of the Ukai reference requires a certain thickness (most preferably 20 to 30 μm).

In contrast, in the present invention, the object of providing the electron diffusion layer is to reduce contact resistance between a separator having bosses and a cathode, in order to facilitate conduction between the bosses and the cathode. Accordingly, the bosses formed on the separator need not to partially bury in the electron diffusion layer as long as the bosses contact the electron diffusion layer. That is, the electron diffusion layer of the present invention can be thin. If the electron diffusion layer were made thick, it would be highly likely that the electron diffusion layer separates from the cathode due to the difference in thermal expansion. Thus, Applicant has amended claim 1 to recite that the thickness of the electron diffusion layer is less than 10 μm.

The Ukai reference fails to disclose or suggest Applicant's added claim limitation that the thickness of the claimed layer between the cathode and a boss on one of the separators is **less than** 10 μm. As noted above, in Ukai the thickness of the layer of the air electrode contact layer is **more preferably 20 to 30 μm.** The only disclosed thicknesses in Ukai are 10 μm and above and the most preferred are in the **20 to 30 μm** range (para [0101]). There is no discussion in Ukai of the air electrode contact layer having a thickness **less than** 10 μm. Accordingly, Applicant respectfully submits that Ukai also fails to disclose or suggest Applicant's claim limitation.

The same reasoning is also applicable to newly added claim 15. Applicant respectfully submits that Buchkremer, Stover and Ukai fail to disclose or suggest that the "layer has a thickness in the range of 1 μm to 5 μm" as recited in the newly added claim 15.

Accordingly, for at least these reasons, Applicant respectfully requests the reconsideration and allowance of claim 1 as well as claims 2-6 and 15 which depend thereon.

CONCLUSION

In view of the above amendments and remarks, Applicant believes the pending application is in condition for allowance and urges the Examiner to pass the claims to allowance. Should the Examiner feel that a teleconference would expedite the prosecution of this application, the Examiner is urged to contact the Applicant's attorney at (617) 227-7400.

Please charge any shortage or credit any overpayment of fees to our Deposit Account No. 12-0080, under Order No. TOW-163US. In the event that a petition for an extension of time is required to be submitted herewith, and the requisite petition does not accompany this response, the undersigned hereby petitions under 37 C.F.R. § 1.136(a) for an extension of time for as many months as are required to render this submission timely. Any fee due is authorized to be charged to the aforementioned Deposit Account.

Dated: April 7, 2010

Respectfully submitted,

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